UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address COMMISSIONER OF PATENTS AND TRADEMARKS
PO Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/664,519	09/18/2000	Michael C. Barney	660005.98757	4670

7590 05/27/2003

David M Kettner
Quarles & Brady LLP
P O Box 2113
Madison, WI 53701-2113

EXAMINER
KAM, CHIH MIN

ART UNIT	PAPER NUMBER
1653	12

DATE MAILED: 05/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/664,519	BARNEY ET AL.	
	Examiner	Art Unit	
	Chih-Min Kam	1653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 March 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 12-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,12-21 and 23-25* is/are rejected.

7)☒ Claim(s) *8 and 22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a)☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4)☐ Interview Summary (PTO-413) Paper No(s). _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: .

DETAILED ACTION

Status of the Claims

1. Claims 1-8 and 12-25 are pending.

Applicants' amendment filed March 17, 2003 (Paper No. 11) is acknowledged, and Applicants' response has been fully considered. Claim 1 has been amended, and new claims 15-25 have been added. Thus, claims 1-8 and 12-25 are examined.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16 is indefinite because the claim recites being dependent from claim 14, which is a product claim not a method claim. Claim 14 recites no process, it would appear that applicant intended this to be a "product" of claim 14.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 2, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nutter *et al.* (WO 98/11883) in view of Todd *et al.* (U. S. Patent 5,082,975).

Nutter *et al.* teach a method of killing cancer cells or bacterial cells, and/or inhibiting their growth through the use of beta acids (also known as lupulones) such as hexahydrocolupulone (HHC) (page 4, line 12-page 5, line 10), and a pharmaceutical composition comprising the beta acid and a pharmaceutical carrier (page 9, lines 14-22; claim 6), which can be used as a topical ointment for topical administration (page 9, lines 23-25; page 10, line 27-page 11, line 17; claim 7) to inhibit the growth of Staphylococcus Aureus (page 6, line 27-page 7, line 6). The reference indicates lupulones can be administered in a dosage from 0.5 mg to 100 mg/kg (page 11, lines 26-30), which corresponds to 0.5 - 100 ppm (0.5 mg/kg = 0.5 x 10^{-3}/1000 g/g = 0.5 ppm; claim 2). However, the reference does not indicate HHC at 0.2-25 ppm would not prevent the growth of lactobacilli. Todd *et al.* (U. S. Patent 5,082,975) shows HHC at high concentration (50-200 ppm, column 7, lines 54-58) inhibits the growth of certain lactobacilli. Therefore, if the concentration of HHC is reduced to a lower concentration such as in the range of 0.2-25 ppm, the inhibition of the growth of lactobacilli would be lessened, thus allow the

growth of lactobacilli (claim 1). At the time of invention was made, it would have been obvious to one of ordinary skill in the art that HHC at lower concentration such as 0.2-25 ppm would inhibit the growth of S. aureus without preventing the growth of lactobacilli as indicated by Nutter *et al.* and Todd *et al.* Thus, the combined references result in the claimed invention and were, as a whole, prima facie obvious at the time the claimed invention was made.

In response, applicants indicates Nutter *et al.* teach the use of HHC in topical application, however, it does not provide any guidance as to the concentration of HHC applied topically, and the suitable dose of HHC, e.g., 0.5 mg-100 mg/kg of body weight is for administration of HHC by parenteral administration or by oral ingestion; and there exists a substantial difference in the application environment when a compound is administered topically versus parenterally, thus the administration of a compound at concentration designated for parenteral application does not necessarily correlate with the concentration for a topical application (pages 5-6 of the response). The response has been fully considered, however, the argument is not found persuasive because Nutter *et al.* indicates the pharmaceutical composition is suitable for oral or parenteral (including topical) administration (page9, line 24), and in general, a suitable dose is in the range of 0.5-100 mg/kg, which indicates this dosage is also for topical application, not just for intravenous injection or oral administration. Applicant also indicates Todd *et al.* teach lactobacillus is killed at concentration level above 50 ppm, however, the reference does not teach the HHC concentration levels below 50 ppm would lessen the inhibitory effect of HHC on lactobacilli, thus allowing the lactobacilli to grow (page 7 of the response). The argument is not found persuasive because Todd *et al.* disclose lactobacilli is inhibited by HHC at 50-200 ppm, and it is obvious to one of ordinary skill in the art that inhibition would be lessened when the

concentration is reduced, furthermore, the applicant has not provided any scientific evidence indicating reducing the concentration of HHC to a lower level such as in the range of 0.2-25 ppm, the inhibition of the growth of lactobacilli would not be lessened.

4. Claims 3-5, 12-21 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nutter *et al.* (WO 98/11883) in view of Todd *et al.* (U. S. Patent 5,082,975) as applied to claim 1 above (and to more accurately state the rejection, claims 1, 2, 6 and 7) , further in view of Lefren *et al.* (U. S. Patent 4,431,427). This is not a new ground of rejection.

Nutter *et al.* teach a method of killing cancer cells or bacterial cells, and/or inhibiting their growth through the use of beta acids (also known as lupulones) such as hexahydrocolupulone (HHC) (page 4, line 12-page 5, line 10), and lupulones can be administered in a dosage from 0.5 mg to 100 mg/kg (page 11, lines 26-30), which corresponds to 0.5 - 100 ppm (0.5 mg/kg = 0.5 x 10^{-3}/1000 g/g = 0.5 ppm; claim 2). Todd *et al.* (U. S. Patent 5,082,975) shows HHC at high concentration (50-200 ppm, column 7, lines 54-58) inhibits the growth of certain lactobacilli. The combined references teach HHC at a low concentration such as in the range of 0.2-25 ppm would inhibit the growth of lactobacilli without prevent the growth of lactobacilli (claim 1). However, Nutter *et al.* and Todd *et al.* do not disclose the use of a product comprising an absorbent and HHC. Lefren *et al.* teach a tampon containing an organic acid in the absorbent material such as cotton fibers to create a hostile but safe environment during the use of tampon to inhibit the growth of pathogenic bacteria such as S. aureus and the compounds should be in an amount to maintain the fluids in the tampon at a pH of 4.5-2.5 (column 1). Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a product such as tampon as taught by Lefren *et al.* but

substituting the organic acid with HHC in the absorbent material at concentration of 0.2-25 ppm (claims 3-5 and 12-14) to inhibit S. aureus without preventing the growth of lactobacilli to maintain normal bacterial flora in a use environment such as vaginal area to avoid the onset of other bacterial infections (claims 15-21 and 23-25). Thus, the combined references result in the claimed invention and were, as a whole, prima facie obvious at the time the claimed invention was made.

In response, applicant indicates neither Nutter *et al.* nor Todd *et al.* teach or suggest the administration of the HHC to the vaginal area, and both references do not provide any guidance on the factors such as pH or normal bacteria flora in the vaginal area to achieve necessary balance for the treatment. The argument is not found persuasive because Lefren *et al.* teach using a tampon containing an organic acid in the absorbent material to create a hostile but safe environment to inhibit the growth of pathogenic bacteria such as S. aureus and the proper acidic pH should be maintained in the tampon, thus the combined references of Nutter *et al.*, Todd *et al.* and Lefren *et al.* teach the use of tampon containing HHC for affecting the growth of S. aureus in the vaginal area as indicated in the section above.

5. Claims 8 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. Claims 1-7, 12-21 and 23-25 are rejected, and claims 8 and 22 are objected to.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Min Kam whose telephone number is (703) 308-9437. The examiner can normally be reached on 8.00-4:30, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Low can be reached on (703) 308-2923. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-0294 for regular communications and (703) 308-4227 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Chih-Min Kam, Ph. D. CMK
Patent Examiner

***
May 21, 2003

Christopher S. F. Low
CHRISTOPHER S. F LOW
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600